

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions, and listings, of claims in the application.

1. (Currently amended) A method ~~comprising: of~~ forming a single structure attached to a micro-fluidic channel ~~based on hydrodynamic focusing~~ using a hydrodynamically focused solidifiable fluid and a focusing fluid; ~~and the method comprising:~~
introducing the hydrodynamically focused solidifiable fluid and the focusing fluid into the micro-fluidic channel;
selectively promoting polymerization in polymerizing a portion of the hydrodynamically focused solidifiable fluid by selectively exposing the portion to an electromagnetic radiation;
~~to form~~ forming the single structure by both hydrodynamic focusing and lithography by ~~having~~ forming a first dimension of the single structure ~~that is~~ based on hydrodynamic focusing and forming a second dimension that is of the single structure based on a ~~patterned mask~~ lithography;
wherein the first dimension and the second dimension are created in different portions of the single structure.
2. (Currently amended) The method of claim 1, wherein forming the single structure comprises solidifying the hydrodynamically focused solidifiable fluid inside the channel.
3. (Currently amended) The method of claim 2, wherein solidifying comprises polymerizing the hydrodynamically focused solidifiable fluid.
4. (Currently amended) The method of claim 3, further comprising promoting polymerization by exposing the hydrodynamically focused solidifiable fluid to ultraviolet radiation.
5. (Canceled)
6. (Currently amended) The method of claim 1, wherein forming the single structure comprises forming a plurality of coatings attached to walls of the channel.
7. (Previously presented) The method of claim 6, wherein forming the coatings comprises forming a coating having a greater compatibility than that of the wall of the channel.
8. (Original) The method of claim 7, wherein forming the coating having the greater compatibility comprises forming a coating having a greater biocompatibility than that of the wall of

the channel.

9. (Original) The method of claim 8, wherein forming the biocompatible coating comprises forming a biocompatible anti-fouling coating.

10. (Original) The method of claim 9, further comprising flowing a fluid containing a biological molecule in the channel containing the biocompatible anti-fouling coating.

11. (Original) The method of claim 8, wherein forming the biocompatible coating comprises forming a biocompatible affinity coating containing a binding material.

12. (Original) The method of claim 8, further comprising flowing a fluid containing a biological molecule in the channel containing the biocompatible affinity coating; and binding the biological molecule to the binding material of the biocompatible affinity coating.

13. (Currently amended) The method of claim 1, wherein forming the single structure comprises forming an internal divider wall.

14. (Original) The method of claim 13, further comprising tailoring a permeability of the divider wall to a molecule.

15. (Original) The method of claim 14, further comprising performing a separation by permeating the molecule across the internal divider wall.

16. (Canceled)

17. (Currently amended) The method of claim 1, wherein forming the single structure comprises forming a pillar having a width that is based on hydrodynamic focusing and a length that is based on the patterned mask.

18. (Canceled)

19. (Currently amended) A method of forming a single structure having a first dimension and a second dimension, the method comprising:

introducing a polymerizable fluid and a focusing fluid into a hydrodynamic focusing system having a micro-fluidic channel;

hydrodynamically ~~focus~~ focusing the polymerizable fluid with the focusing fluid within the micro-fluidic channel;

~~selectively promoting polymerization in~~ polymerizing a portion of the hydrodynamically focused polymerizable fluid by selectively exposing the portion to an electromagnetic radiation

~~based on a patterned mask; and~~

~~forming a structure having a first dimension that is based on hydrodynamic focusing and a second dimension that is based on the patterned mask attached to the micro-fluidic channel in the hydrodynamic focusing system by polymerizing the exposed portion of the hydrodynamically focused polymerizable fluid~~

forming the single structure by both hydrodynamic focusing and lithography by forming a first dimension of the single structure based on hydrodynamic focusing and forming a second dimension of the single structure based on lithography;

wherein the first dimension and the second dimension are created simultaneously in different portions of the single structure.

20-21. (Canceled)

22. (Currently amended) The method of claim [[21]] 19, wherein forming the single structure comprises forming a pillar having a width that is based on hydrodynamic focusing and a length that is based on ~~the patterned mask~~ lithography.

23. (Currently amended) The method of claim 19, wherein forming the single structure comprises forming a plurality of coatings attached to walls of the channel.

24. (Currently amended) The method of claim 19, wherein forming the single structure comprises forming an internal divider wall.

25. (Original) The method of claim 19, further comprising performing a separation by permeating a molecule across the internal divider wall.

26-33. (Canceled)